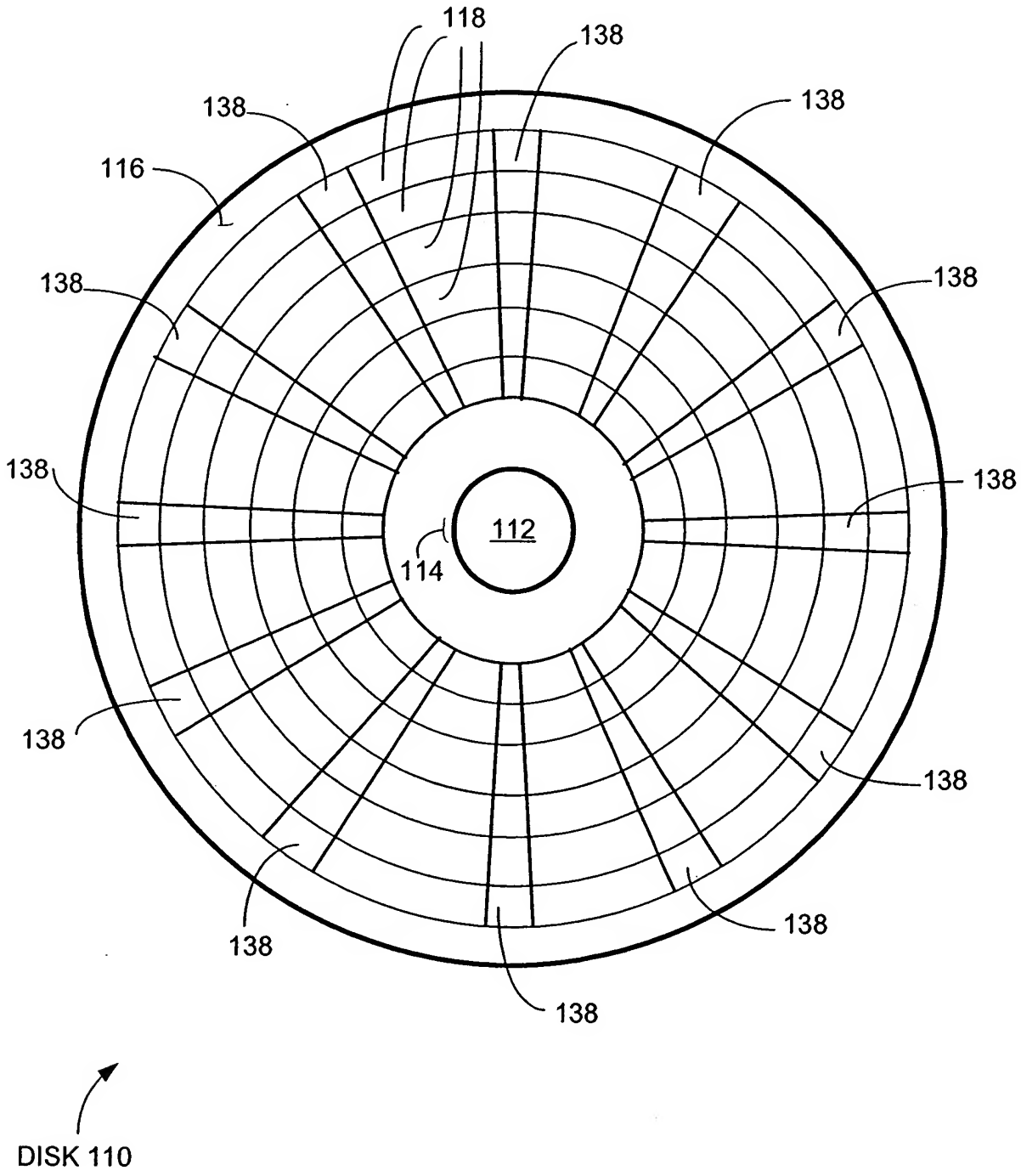
118
138
138
138
116
138
138
138
138
112
114
138
138
138
138
138
DISK 110

FIG. 1

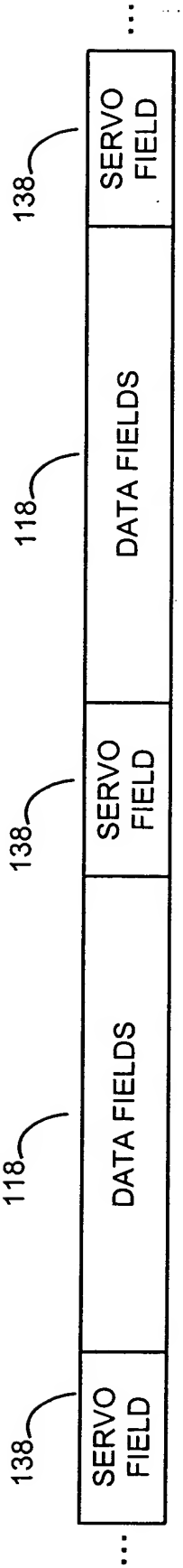
SERVO FIELD
DATA FIELDS
SERVO FIELD
DATA FIELDS
SERVO FIELD
138
118
138
118
138

FIG. 2

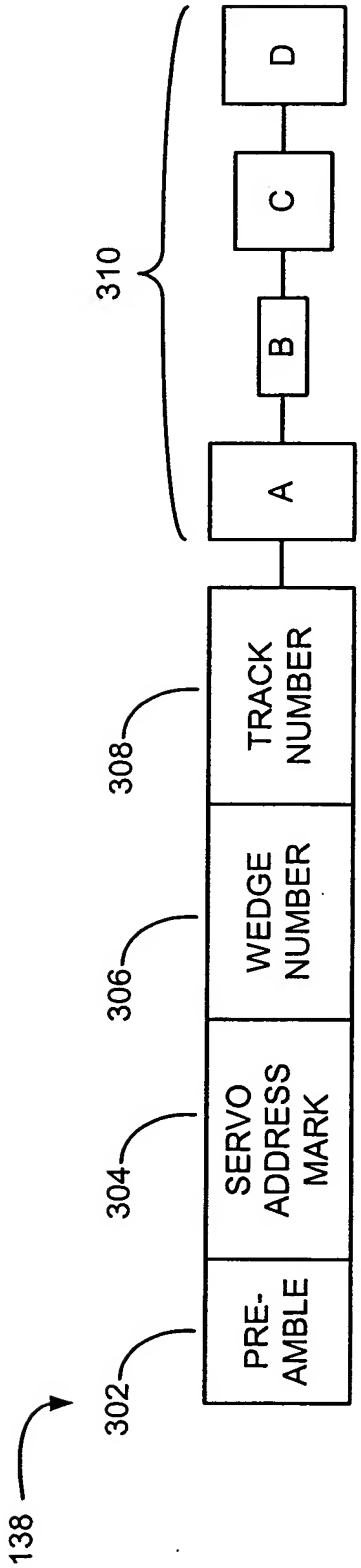
PRE-AMBLE
SERVO ADDRESS MARK
WEDGE NUMBER
TRACK NUMBER
A
B
C
D
310
308
306
304
302
138

FIG. 3

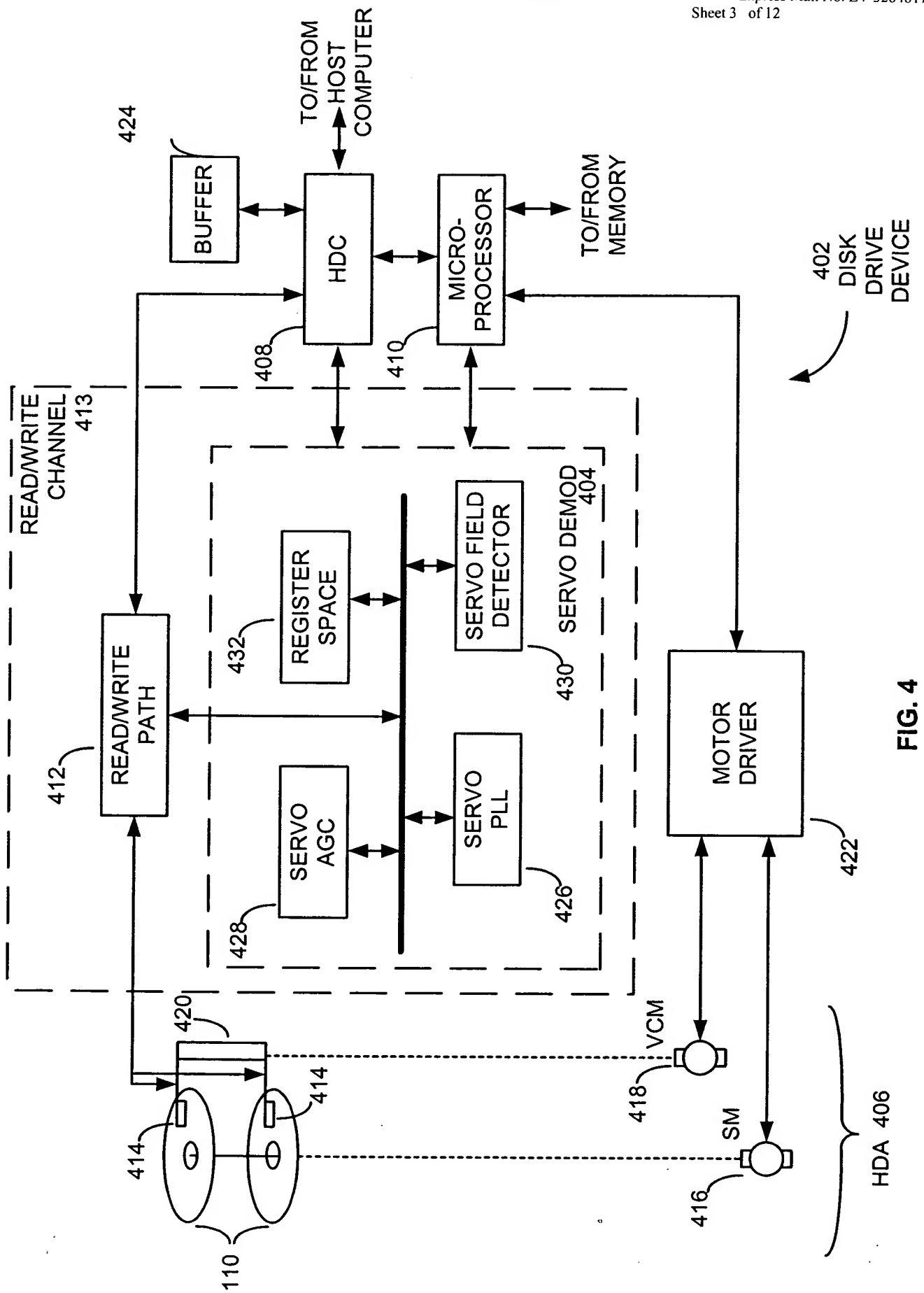
TO/FROM HOST COMPUTER
424
BUFFER
HDC
MICRO-PROCESSOR
TO/FROM MEMORY
402 DISK DRIVE DEVICE
408
410
READ/WRITE CHANNEL 413
SERVO DEMOD 404
REGISTER SPACE
SERVO FIELD DETECTOR
432
430
READ/WRITE PATH
412
SERVO AGC
SERVO PLL
428
426
MOTOR DRIVER
422
420
VCM
418
414
414
SM
416
110
HDA 406

FIG. 4

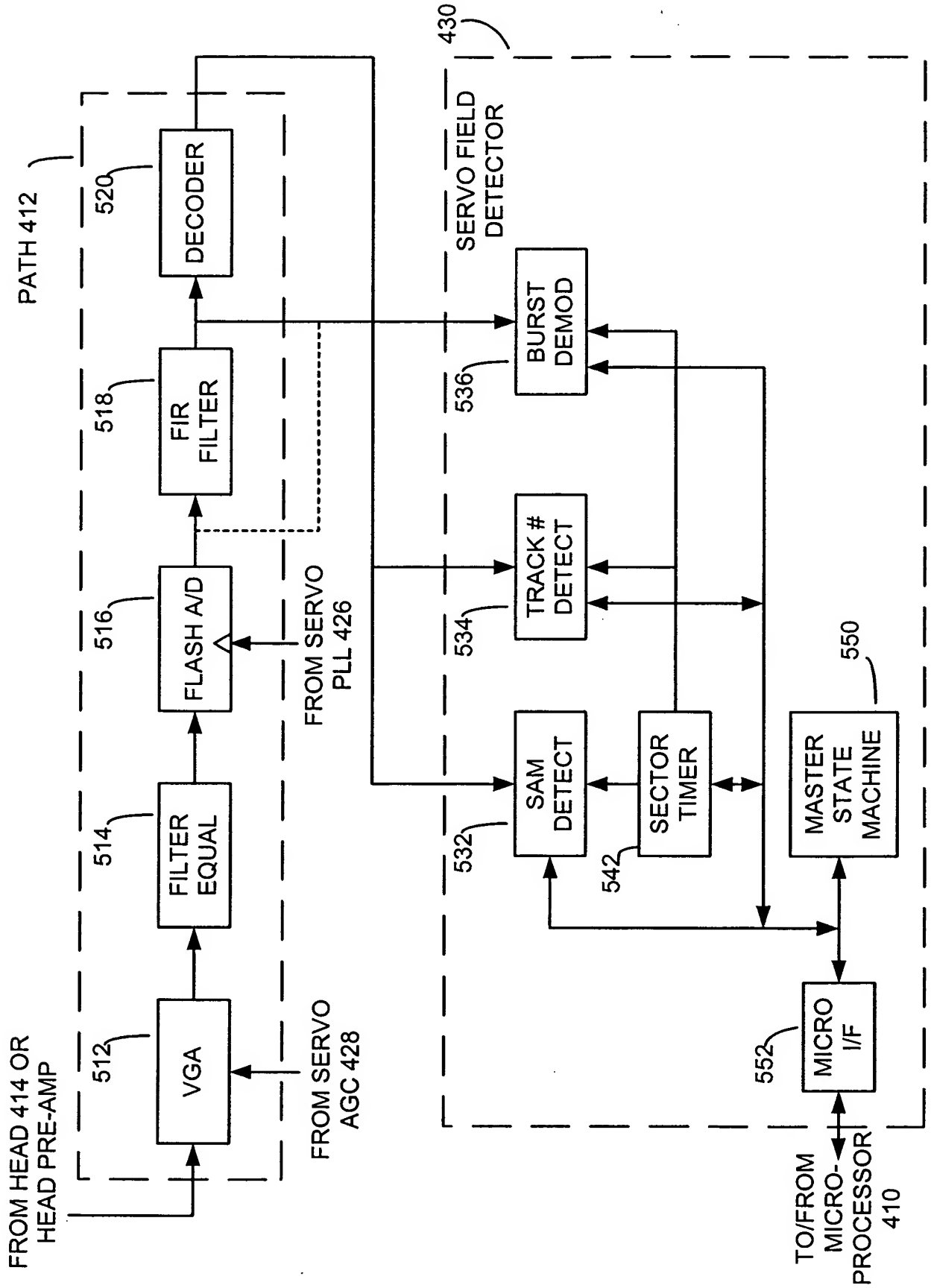
FROM HEAD 414 OR HEAD PRE-AMP
VGA
512
FILTER EQUAL
514
FLASH A/D
516
FIR FILTER
518
DECODER
520
PATH 412
FROM SERVO AGC 428
FROM SERVO PLL 426
430
SERVO FIELD DETECTOR
BURST DEMOD
536
TRACK # DETECT
534
SAM DETECT
532
SECTOR TIMER
542
MASTER STATE MACHINE
550
MICRO I/F
552
TO/FROM MICRO-PROCESSOR 410

FIG. 5

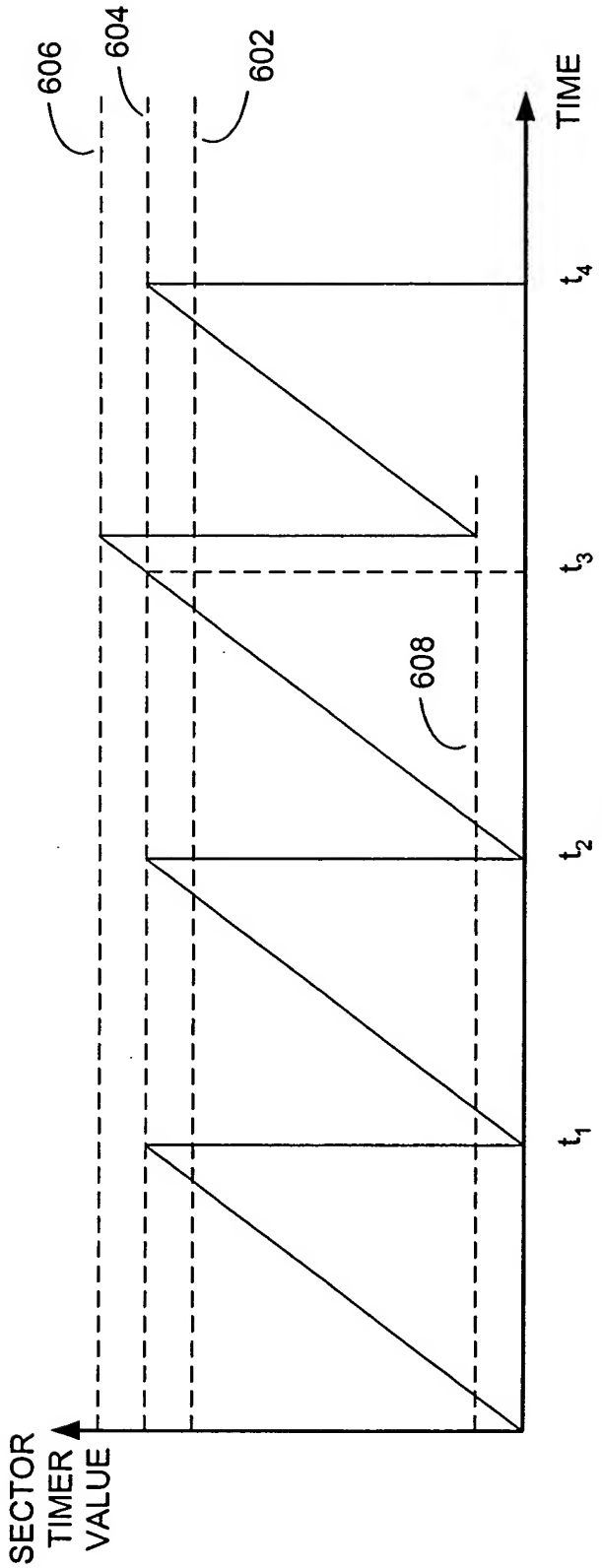
606
604
602
TIME
SECTOR TIMER VALUE
t_1
t_2
t_3
t_4
608

FIG. 6

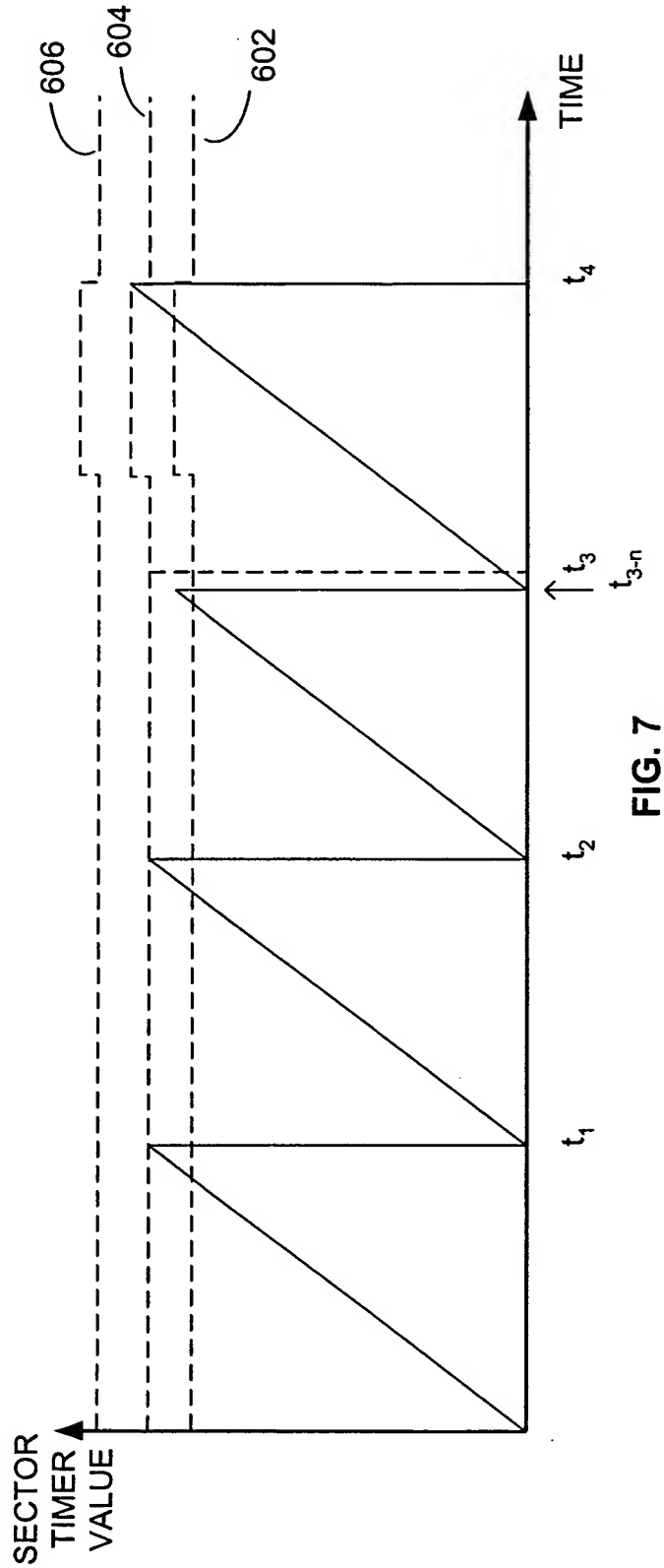
606
604
602
TIME
SECTOR TIMER VALUE
t_1
t_2
t_3
t_{3-n}
t_4

FIG. 7

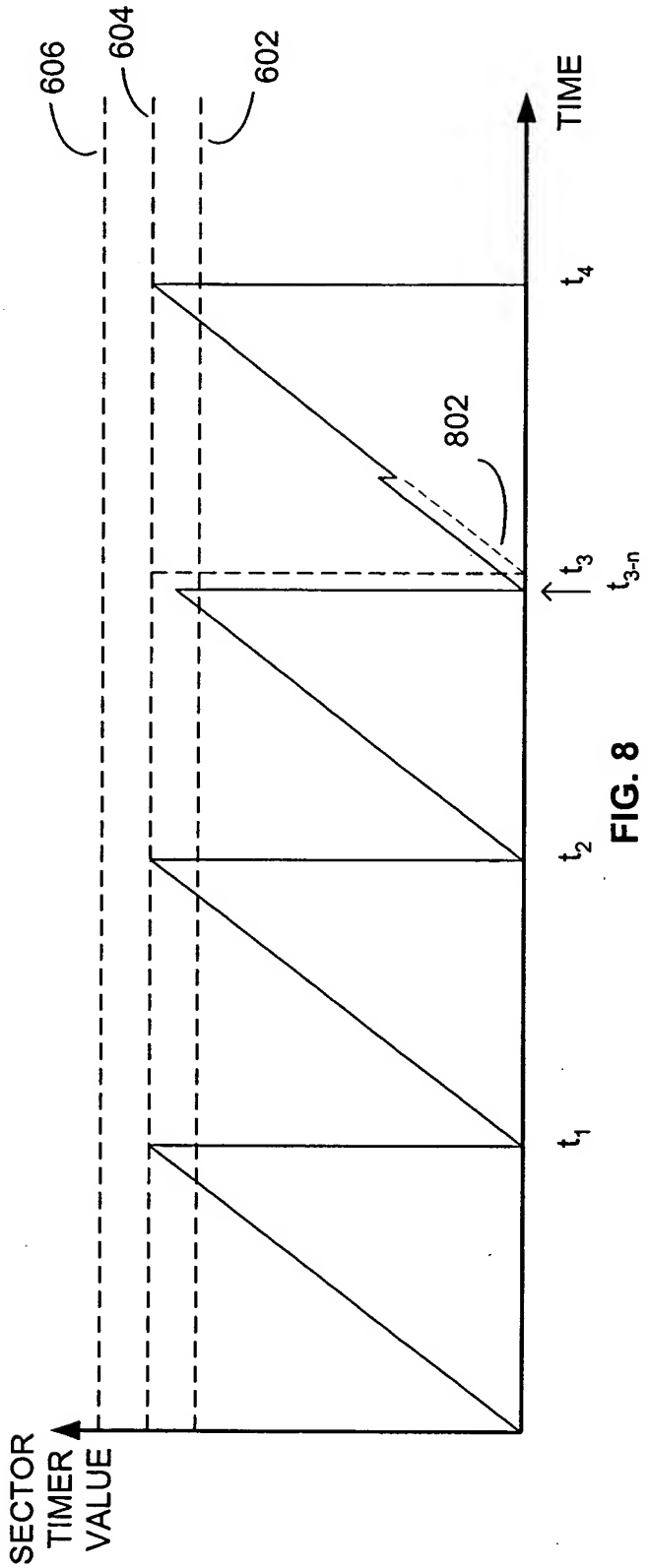

FIG. 8

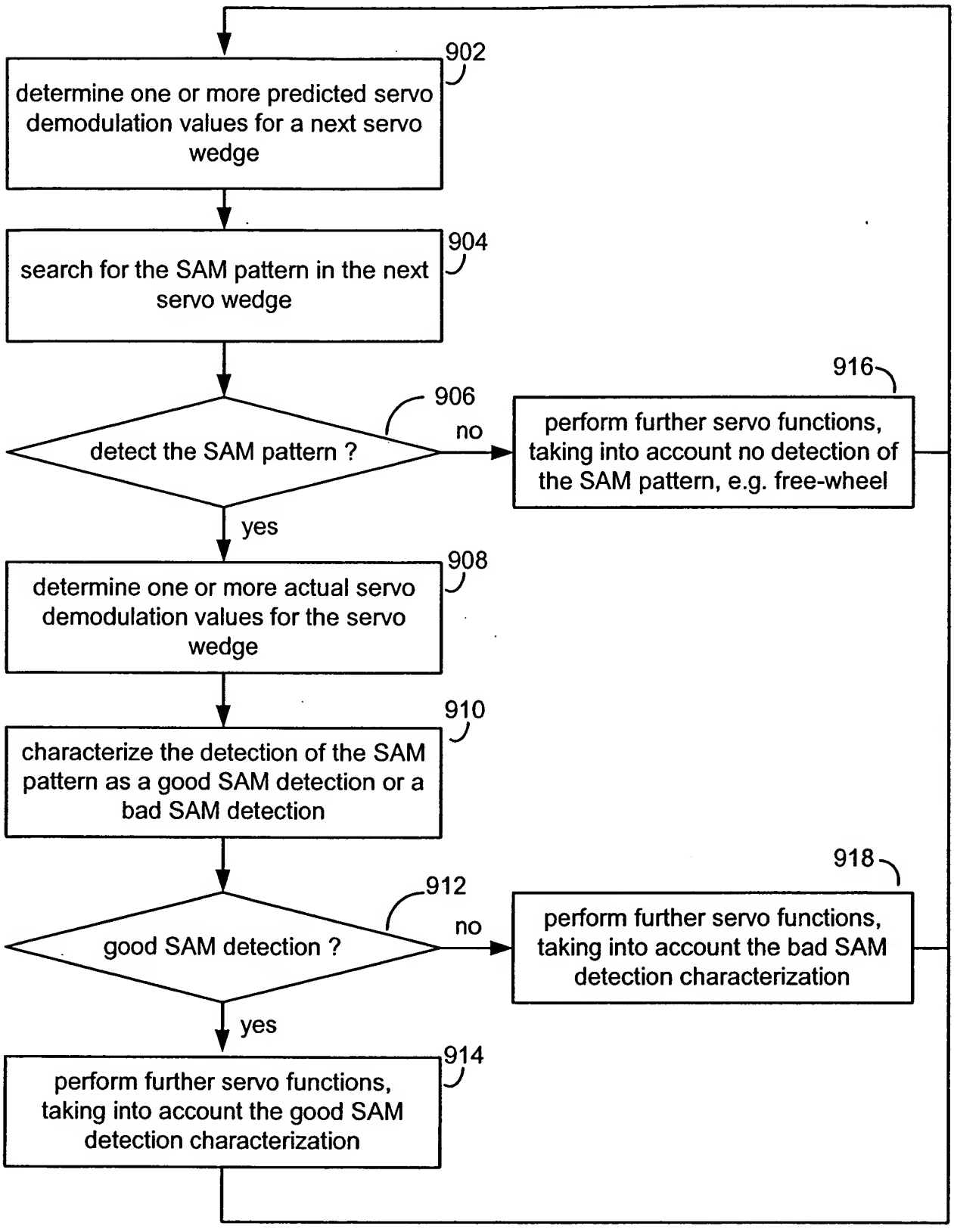
902
determine one or more predicted servo demodulation values for a next servo wedge
904
search for the SAM pattern in the next servo wedge
906
detect the SAM pattern ?
no
916
perform further servo functions, taking into account no detection of the SAM pattern, e.g. free-wheel
yes
908
determine one or more actual servo demodulation values for the servo wedge
910
characterize the detection of the SAM pattern as a good SAM detection or a bad SAM detection
912
good SAM detection ?
no
918
perform further servo functions, taking into account the bad SAM detection characterization
yes
914
perform further servo functions, taking into account the good SAM detection characterization

FIG. 9

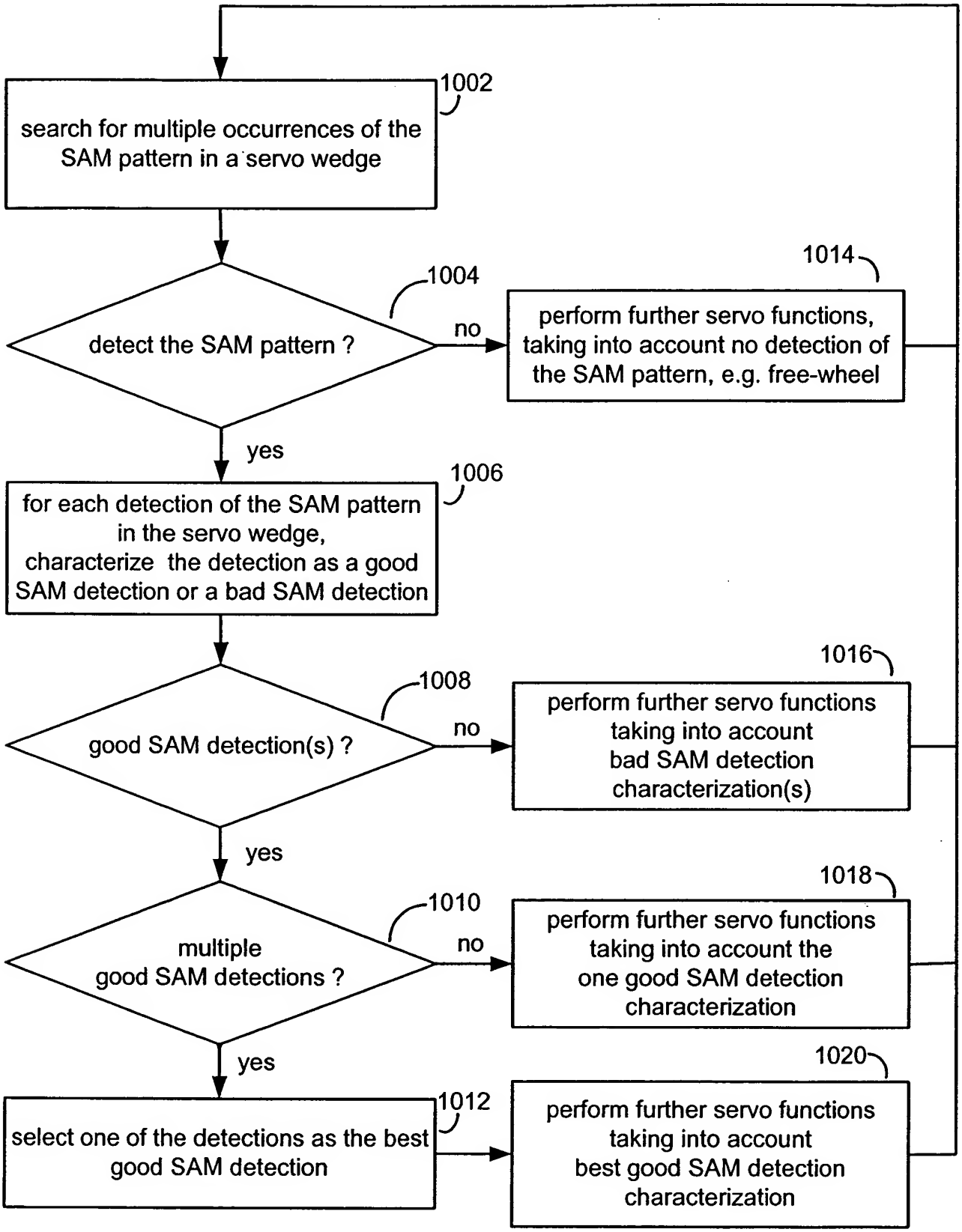
search for multiple occurrences of the SAM pattern in a servo wedge
1002
detect the SAM pattern ?
1004
no
perform further servo functions, taking into account no detection of the SAM pattern, e.g. free-wheel
1014
yes
for each detection of the SAM pattern in the servo wedge, characterize the detection as a good SAM detection or a bad SAM detection
1006
good SAM detection(s) ?
1008
no
perform further servo functions taking into account bad SAM detection characterization(s)
1016
yes
multiple good SAM detections ?
1010
no
perform further servo functions taking into account the one good SAM detection characterization
1018
yes
select one of the detections as the best good SAM detection
1012
perform further servo functions taking into account best good SAM detection characterization
1020

FIG. 10

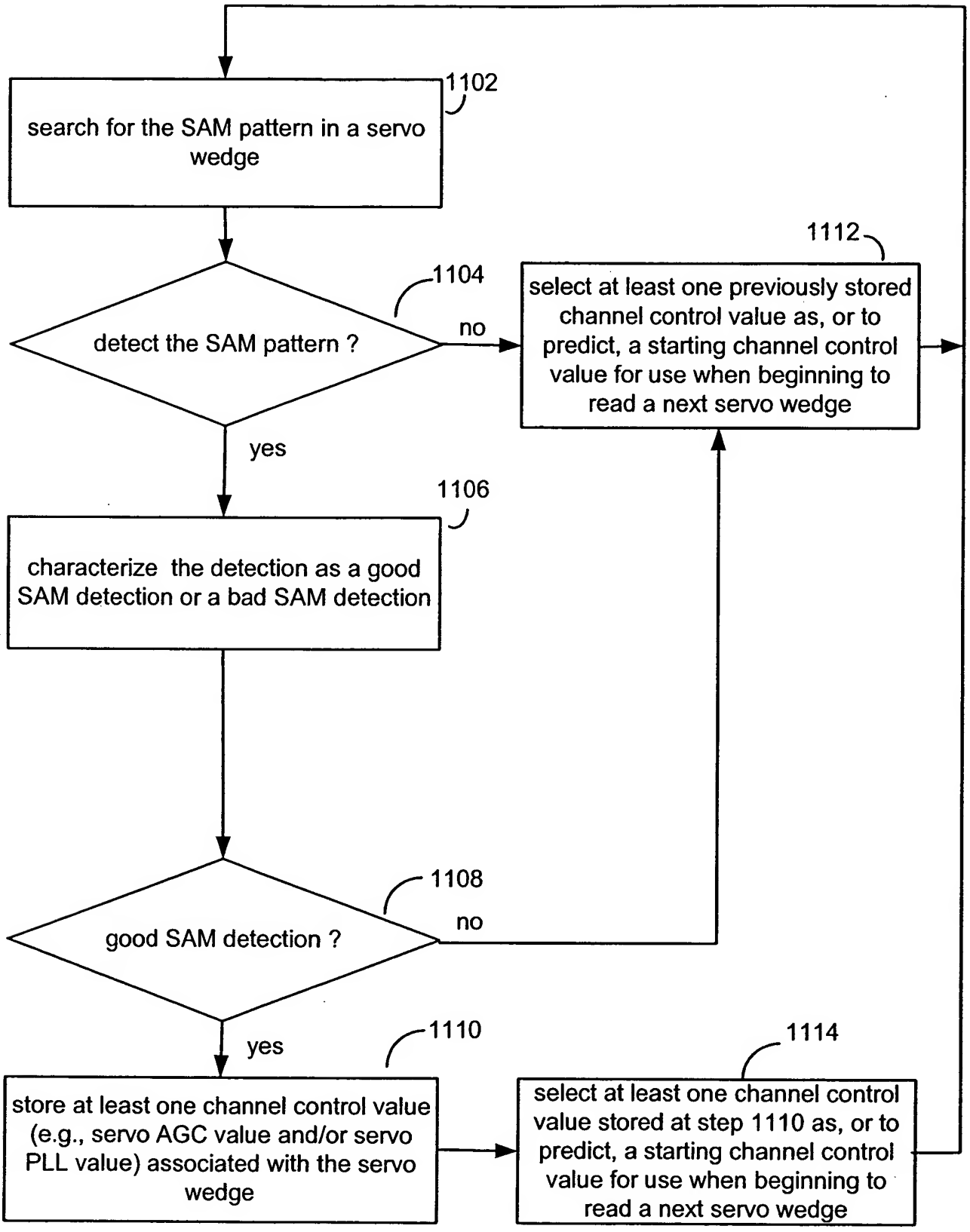
search for the SAM pattern in a servo wedge
1102
detect the SAM pattern ?
1104
no
yes
select at least one previously stored channel control value as, or to predict, a starting channel control value for use when beginning to read a next servo wedge
1112
characterize the detection as a good SAM detection or a bad SAM detection
1106
good SAM detection ?
1108
no
yes
store at least one channel control value (e.g., servo AGC value and/or servo PLL value) associated with the servo wedge
1110
select at least one channel control value stored at step 1110 as, or to predict, a starting channel control value for use when beginning to read a next servo wedge
1114

FIG. 11A

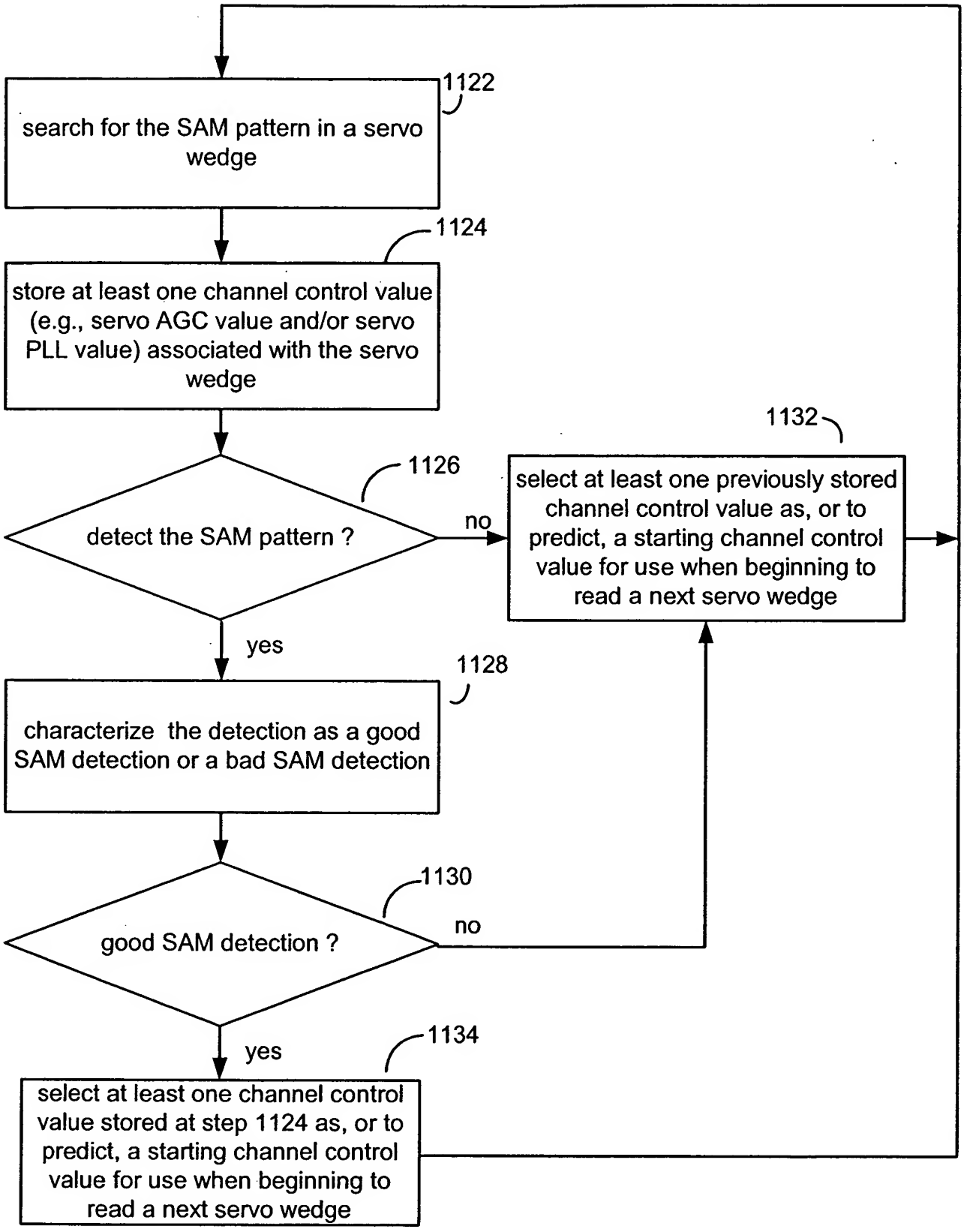
search for the SAM pattern in a servo wedge
1122
store at least one channel control value (e.g., servo AGC value and/or servo PLL value) associated with the servo wedge
1124
detect the SAM pattern ?
1126
no
yes
select at least one previously stored channel control value as, or to predict, a starting channel control value for use when beginning to read a next servo wedge
1132
characterize the detection as a good SAM detection or a bad SAM detection
1128
good SAM detection ?
1130
no
yes
select at least one channel control value stored at step 1124 as, or to predict, a starting channel control value for use when beginning to read a next servo wedge
1134

FIG. 11B

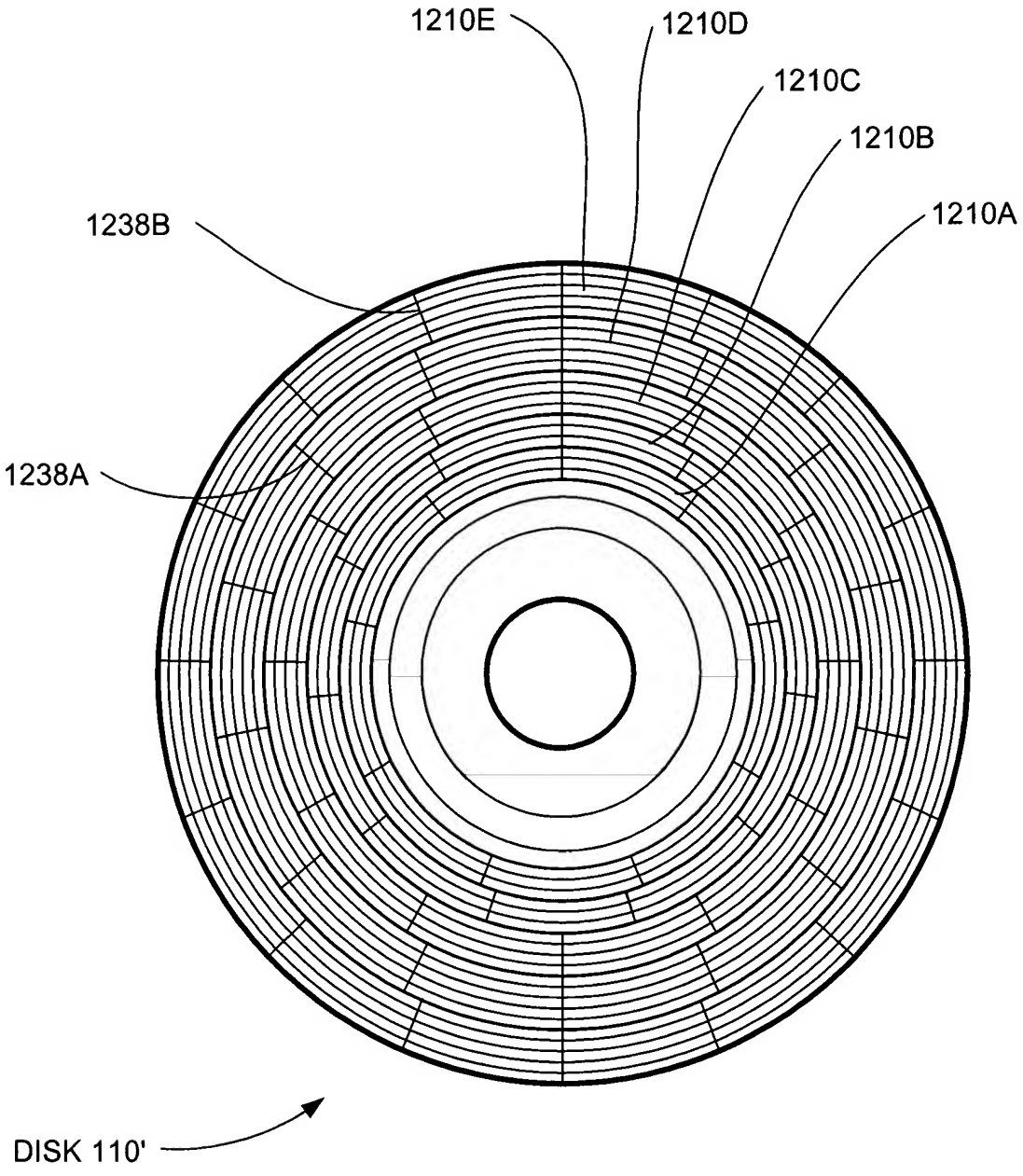

FIG. 12

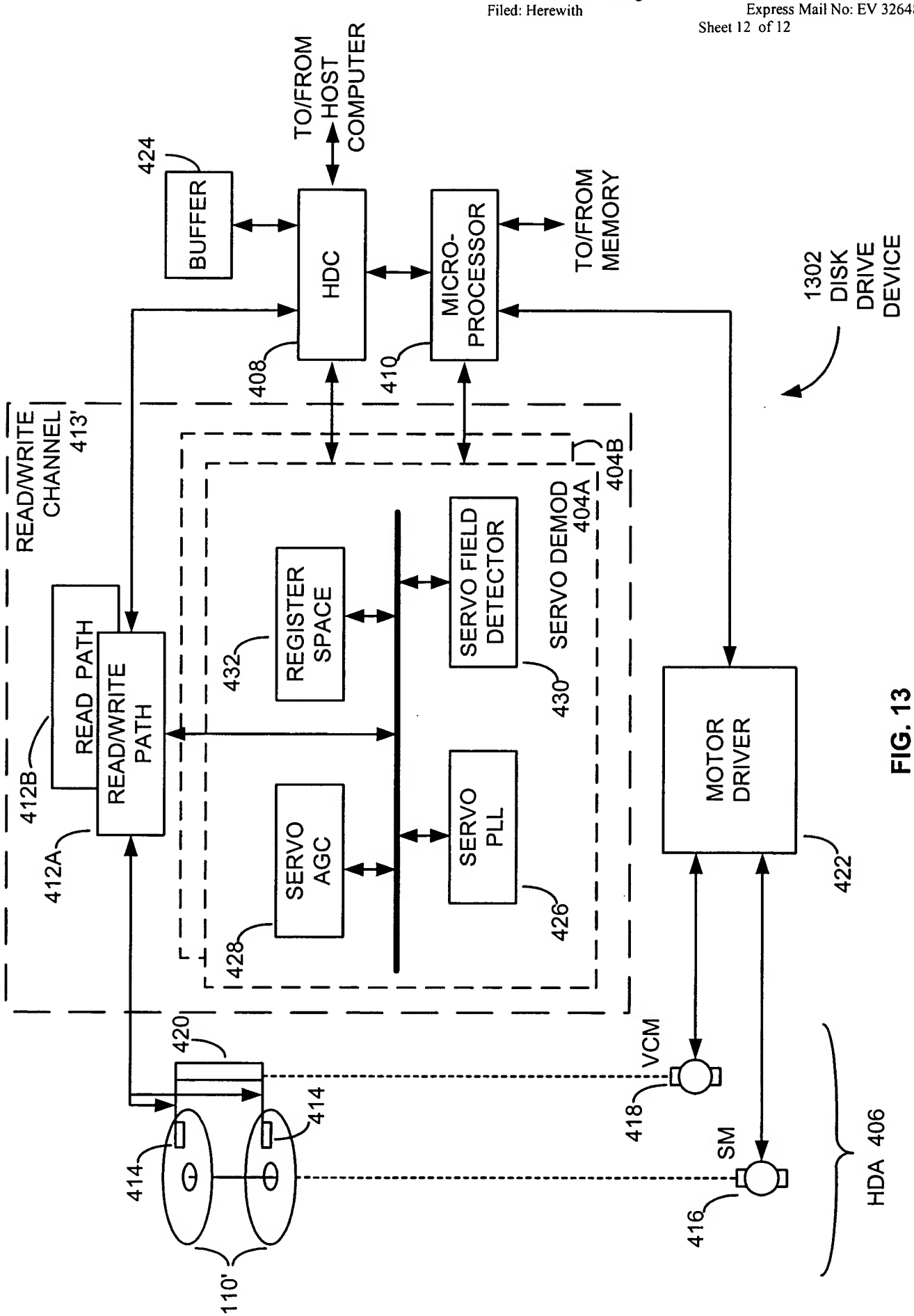
TO/FROM HOST COMPUTER
424
BUFFER
HDC
MICRO-PROCESSOR
TO/FROM MEMORY
1302 DISK DRIVE DEVICE
408
410
READ/WRITE CHANNEL
413'
404B
SERVO DEMOD
404A
SERVO FIELD DETECTOR
REGISTER SPACE
432
430
READ PATH
READ/WRITE PATH
412B
412A
SERVO AGC
SERVO PLL
428
426
MOTOR DRIVER
422
420
VCM
418
414
414
SM
416
110'
HDA 406

FIG. 13